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I hereby certify that this paper (along with any referred to as being attached or enclosed) is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450 on March 30, 2006.

Signed


Laura Lee Mosier

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:
Alan A. FENNEMA *et al.*

Application No. 10/759,546

Filed: January 16, 2004

For: APPARATUS AND METHOD FOR
PHASE CONTROL OF TUNABLE
EXTERNAL CAVITY LASERS

Art Unit: 2828

Examiner: UNELUS, Ernest

Date: March 30, 2006

RESPONSE

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Restriction Requirement

In response to the restriction requirement imposed in the Office Action mailed December 2, 2005, Applicants elect to pursue Claims 1-9, 12-17, and 18-20 of Group I.

Election of Species Requirement

With respect to the election of species requirement contained in the Action, Applicants elect the species of FIG. 2A. All of the claims of Group I, that is Claims 1-9 and 12-20, read on the species of FIG. 2A.

In addition to the foregoing, Applicants note that Claims 1-9 and 12-20 also read on the species of FIG. 1 and at least Claims 1-6, 8-9 and 12-20 read on the species of FIG. 7. In this regard, FIG. 1 shows a generic representation of an apparatus for phase control of a tunable laser, while FIGS. 2A and 7 each show specific implementations of this generic representation.. In view of the foregoing, the election of species requirement is improper and should be withdrawn.

Specifically, independent Claim 1, as originally filed and presently pending, covers each of the implementations shown in FIGS. 1, 2A and 7. Each figure shows a “laser source (21 in all figures) for generating an output beam of light (27 in all figures) having an output frequency, an output phase and an output power and for generating a reference beam of light (26 in all figures), a first optical detector (24 in all figures) for receiving at a portion of the output beam of light and generating a first signal (28 in all figures), a second optical detector (25 in FIG. 1, 44 in FIG. 2A, the combined 96, 97 and 98 in FIG. 7) for receiving at least a portion of the reference beam of light and generating a second signal (29 in FIG. 1, 29’ in FIGS. 2A and 7), a calibration memory (140 in all figures) for storing an optimum ratio of the first signal to the second signal and a control unit (23 in all figures) coupled to the calibration memory and the first and second optical detectors and the laser source for generating at least one control signal based on the optimum ratio.” Likewise, dependent Claims 2, 3, 6 and 9 (each of which depend from Claim 1) also cover each of the embodiments shown in FIGS. 1, 2A and 7.

Regarding Claim 4, this claim covers at least the embodiments shown in FIGS. 2A and 7 because both figures show a “variable length optical resonator (107) having a mirror (37) and a diffraction grating (35), the variable length optical resonator further comprising a first actuator (41) coupled to the mirror and a second actuator (39) coupled to the diffraction grating for selecting the output frequency of the output beam of light and the cavity length.” Also, since FIG. 1 broadly covers any form of “filter,” of which a “variable length optical resonator” is but one embodiment, FIG. 1 is properly also construed as a generic embodiment precluding election of any given species and precluding election of only one of FIGS. 1, 2A and 7.

Regarding Claim 5, this claim depends from Claim 4 and further recites “wherein the first actuator (37) is a MEMS actuator and the second actuator (39) is a piezoelectric translator.” Applicant notes that both FIGS. 2A and 7 show a “MEMS actuator” and a “piezoelectric translator” as the respective first and second actuators. Again, FIG. 1 broadly covers any form of “filter,” of which a “variable length optical resonator” with MEMS actuators et al. is but one embodiment. Thus, FIG. 1 is properly also construed as a generic embodiment precluding election of any given species and precluding election of only one of FIGS. 1, 2A and 7.

Regarding Claim 7, this claim recites “wherein the second optical detector is part of a wavelength locker.” As such, it refers to FIG. 2A. But, since FIG. 1 broadly covers any form of “second optical detector” it is properly also considered within the generic scope of FIG. 1.

Similarly, independent Claim 12 covers a method for tuning a laser, for example, those tunable laser embodiments shown in FIGS. 1, 2A and 7. Thus, it is also improper to restrict Claim 12 to any given figure. Regarding dependent Claims 13-17, each of which depends from Claim 12, these claims also cover and relate to, at a minimum, the embodiments shown in FIGS. 1, 2A and 7.


Last, independent Claim 18 and dependent Claims 19 and 20 also cover, at a minimum, all of the embodiment shown in FIGS. 1, 2A and 7. Thus, it is also improper to restrict these claims to any given figure.

In view of the foregoing, it is respectfully submitted that the claims of record are allowable and that the application should be passed to issue. Should the Examiner believe that the application is not in a condition for allowance and that a telephone interview would help further prosecution of this case, the Examiner is requested to contact the undersigned attorney at the phone number below.

Date: March 30, 2006

Respectfully submitted,

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